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Intellectual Property Administration  
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PATENT APPLICATION

ATTORNEY DOCKET NO. 10031055-1

IN THE  
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Bernhard Ulrich Koelle et al.

Serial No.:

Examiner:

Filing Date: Herewith

Group Art Unit:

Title: SINGLE-MODE VERTICAL CAVITY SURFACE EMITTING LASERS AND METHODS OF  
MAKING THE SAME

COMMISSIONER FOR PATENTS  
PO Box 1450  
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Sir:

This Information Disclosure Statement is submitted:

- ☒ under 37 CFR 1.97(b), or  
(Within three months of filing national application; or date of entry of national application; or before  
mailing date of first office action on the merits; whichever occurs last)
- ☐ under 37 CFR 1.97(c) together with either a:  
☐ Statement under 37 CFR 1.97(e), or  
☐ a \$180.00 Processing fee under 37 CFR 1.17(p), or  
(After the CFR 1.97 (b) time period, but before final action or notice of allowance, whichever occurs first)
- ☐ under 37 CFR 1.97 (d) together with a:  
☐ Statement under 37 CFR 1.97(e), and  
☐ a \$180.00 processing fee under 37 CFR 1.17(p).  
(Filed after final action or notice of allowance, whichever occurs first, but before payment of the issue fee)

Please charge to Deposit Account **50-1078** the sum of \$0.00. At any time during the pendency  
of this application, please charge any fees required or credit any overpayment to Deposit Account  
**50-1078** pursuant to 37 CFR 1.25.

☐ Applicant(s) submit herewith Form PTO 1449. References identified with an asterisk (\*) were  
disclosed in Patent Application No. \_\_\_\_\_ filed \_\_\_\_\_, now U. S. Patent No.  
\_\_\_\_\_, and, as such, copies thereof are not included pursuant to the provisions of 37 CFR  
1.98(d).

☐ A concise explanation of the relevance of foreign language patents, foreign language publications  
and other foreign language information listed on PTO Form 1449, as presently understood by the  
individual(s) designated in 37 CFR 1.56 (c) most knowledgeable about the content is given on the  
attached sheet, or where a foreign language patent is cited in a search report or other action by a  
foreign patent office in a counterpart foreign application, an English language version of the search  
report or action which indicates the degree of relevance found by the foreign office is listed on form PTO  
1449 and is enclosed herewith.

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Date of Deposit **Oct. 27, 2003**

I hereby certify that this is being deposited with the  
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Office to Addressee" service under 37 CFR 1.10 on  
the date indicated above and is addressed to:  
Commissioner for Patents, PO Box 1450,  
Alexandria, VA 22313-1450.

By \_\_\_\_\_

Typed Name: **Edouard Garcia**

Respectfully submitted,

**Bernhard Ulrich Koelle et al.**

By \_\_\_\_\_

**Edouard Garcia**

Attorney/Agent for Applicant(s)  
Reg. No. **38,461**

Date: **Oct. 27, 2003**

<b>FORM PTO-1449</b>  <b>LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT</b>  (Use several sheets if necessary)	ATTY. DOCKET NO.	SERIAL NO.
	10031055-1	
	APPLICANT <b>Bernhard Ulrich Koelle et al.</b>	
	FILING DATE	GROUP
	Herewith	

## REFERENCE DESIGNATION

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL	*	DOCUMENT NUMBER	DATE	NAME
	*	6,628,695	Sep. 30, 2003	Aldaz et al.
	*	6,618,414	Sep. 9, 2003	Wasserbauer et al.
	*	6,534,331	Mar. 18, 2003	Liao et al.
	*	6,411,638	June 25, 2002	Johnson et al.
	*	6,026,111	Feb. 15, 2000	Jiang et al.
	*	5,867,516	Feb. 2, 1999	Corzine et al.

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	NAME	TRANSLATION	
					YES	NO

## OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, etc.)

*	US Patent Application Publication No. 2002/0150135, Naone et al. (Oct. 17, 2002).
	Unold et al., "Improving single-mode VCSEL performance by introducing a long monolithic cavity," IEEE Photonics Technology Letters, Vol. 12, No. 8, pp. 929-941, August 2000.
	Deppe et al., "High spatial coherence vertical-cavity surface-emitting laser using a long monolithic cavity," Electronics Letters, Vol. 33, No. 3, pp. 211-213 Jan. 30, 1997.

EXAMINER	DATE CONSIDERED
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\* Copies of these references are not enclosed pursuant to 37 CFR 1.98(d). (See accompanying IDS)

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## OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, etc.)

	Ha et al., "Determination of cavity loss in proton implanted vertical-cavity surface-emitting lasers," Jpn. J. Appl. Phys., Vol. 37, Part 2, No. 4A, L372-L374, April 1998.
	Kardosh et al., "Vertical-extended-cavity surface-emitting lasers," Annual Report 2002, Optoelectronics Department, University of Ulm, pp. 1-7, Jan. 2003.

EXAMINER	DATE CONSIDERED
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